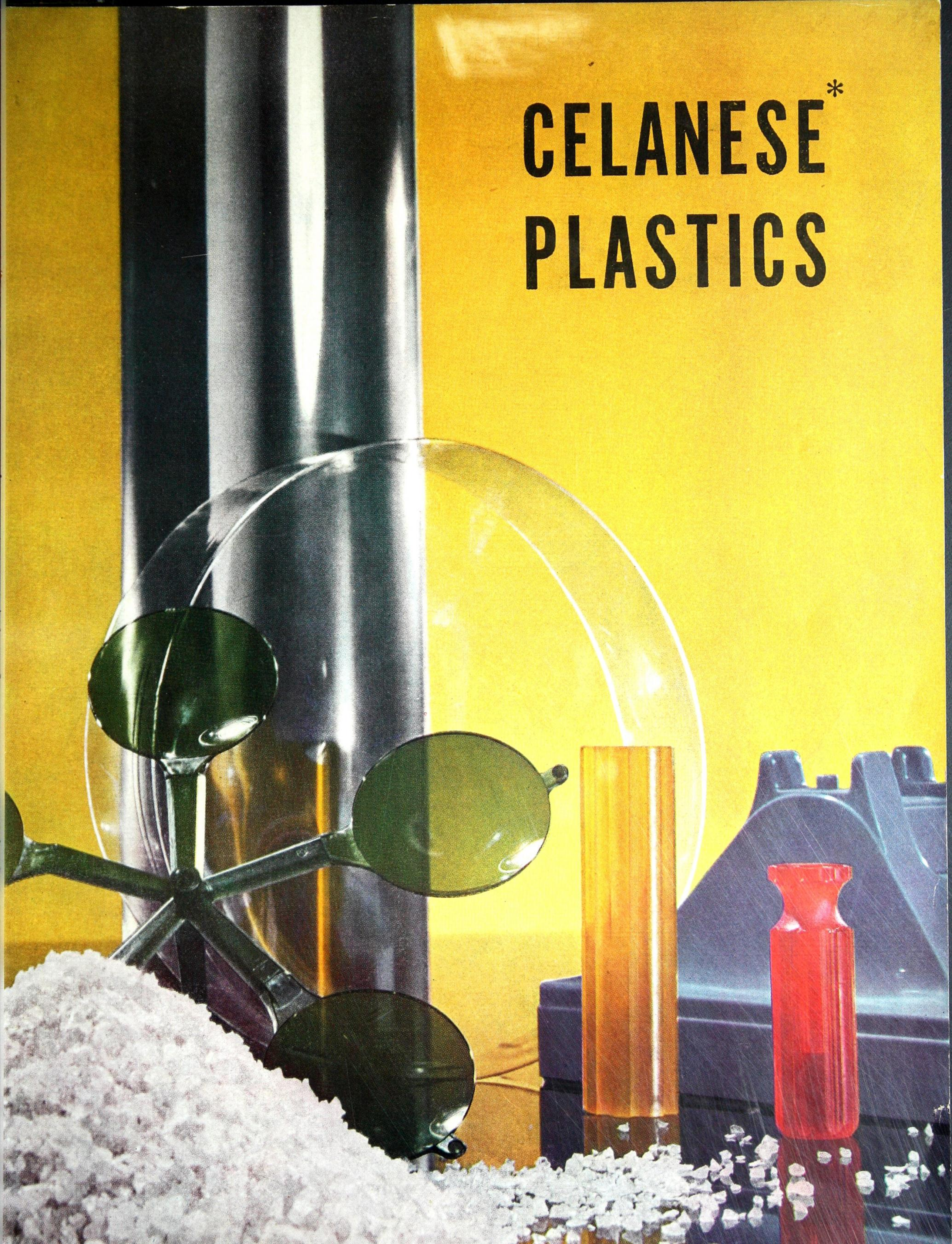
CELANESE* PLASTICS



CELANESE* PLASTICS ARE offer the consumer

Here are 9 reasons why Celanese Plastics produce sales—why the consumer chooses the product made or packaged with Celanese.

WHILE there is no such thing as an all-purpose plastic, experience proves that the "cellulosics" are suited to a wider range of applications than any other plastic group. In addition to their long known and widely recognized advantages, recent developments and improvements in the cellulosics have increased the scope of their usefulness. The Celanese cellulosic plastics offer the designer and manufacturer a choice of types and formulations that bracket in physical properties the full range of cellulosic plastics possibilities.

Although Celanese plastics are less than half the weight of the lightest commercial metal, they are outstandingly tough. This toughness that means high impact and tensile strength, excellent mar resistance and flexibility is achieved without supporting filler. It is inherent in the structure of the plastic itself.

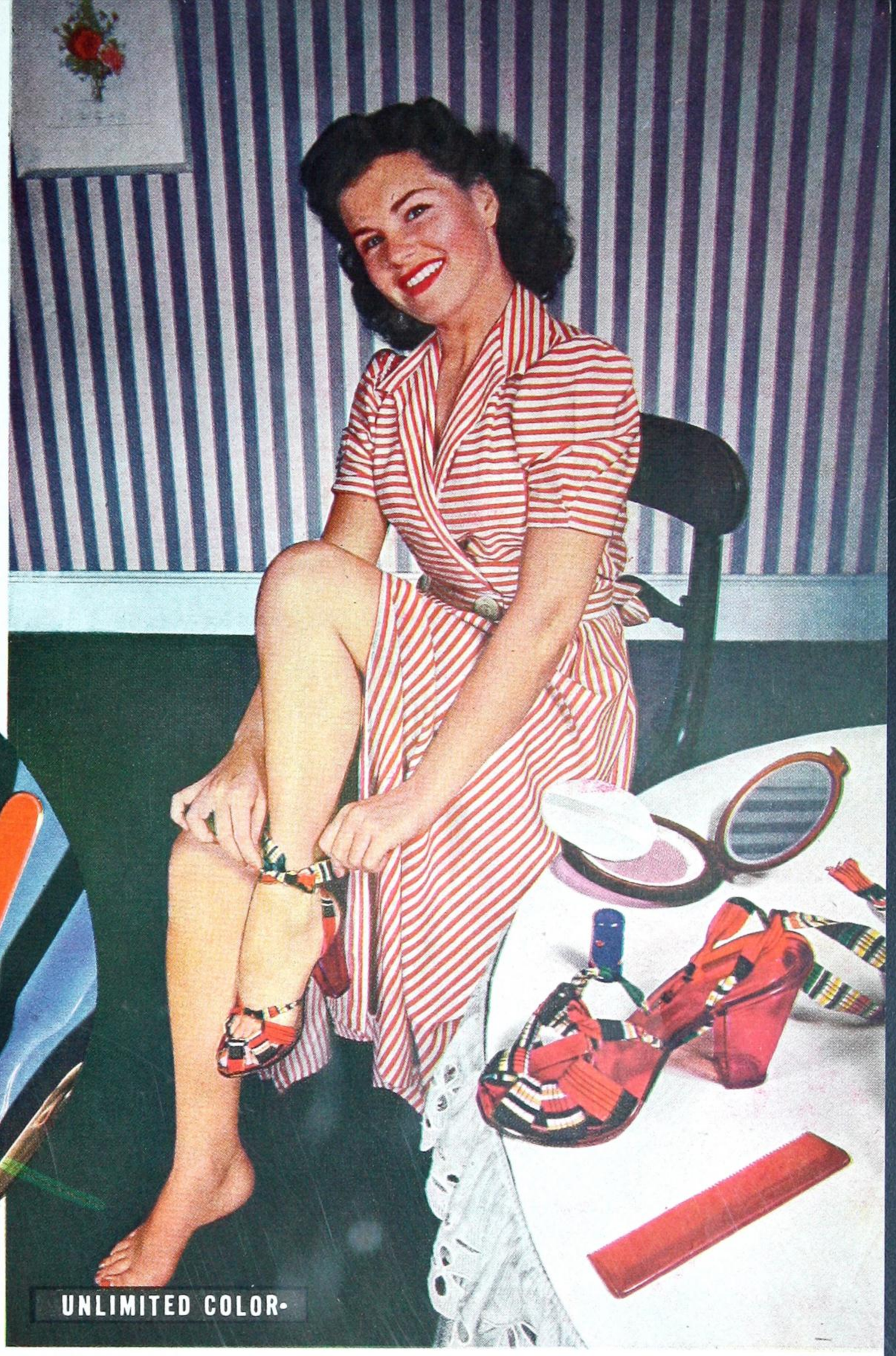
Celanese plastics are available in forms for all types of product design and manufacture: sheets, rods, tubes, films, foils and molding materials.

Celanese thermoplastics can be molded and shaped by the application of heat and pressure. No chemical change takes place and no solvents are required. The advantages from a production standpoint are obvious. Celanese plastics can be molded by the fastest injection and extrusion molding methods. They are adaptable to other molding processes as well.

Toughness and easy moldability are joined by another outstanding characteristic in Celanese plastics—colorability. Literally thousands of subtle and brilliant colors are obtainable in standard formulations, and color density can be accurately controlled for accurate color matching of articles having varied

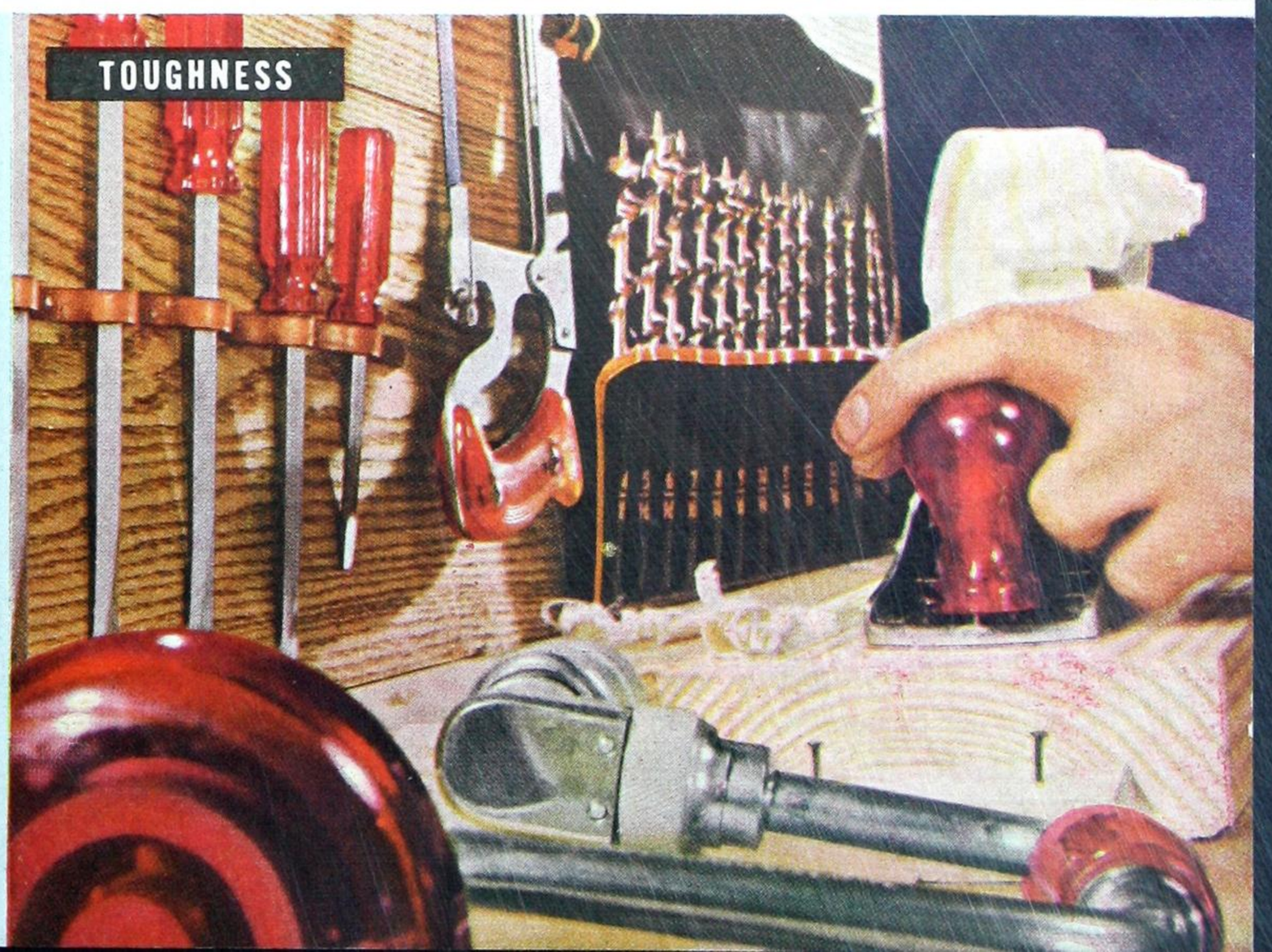
*Reg. U. S. Pat. Off.

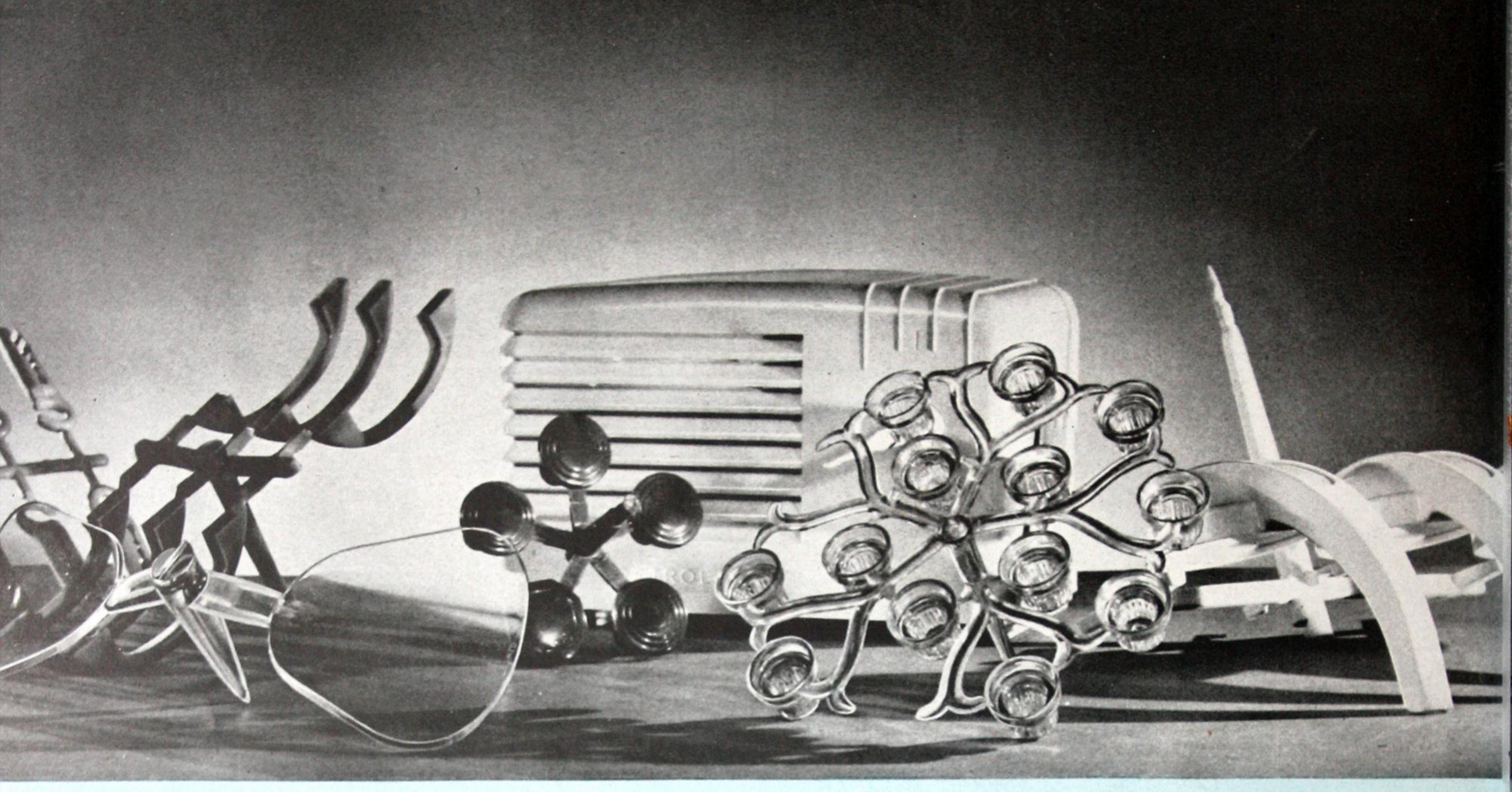
SALES-PRODUCERS...
many advantages



bulk and cross section. This color density control is invaluable to automotive and aircraft designers, who must design ensemble items such as instrument panel, steering wheel, door handles, radio grill, switch buttons, etc.

In the development of product design, conditions of use, appearance, consumer preference, production facilities and price are factors which influence the selection of plastic and formulation. Through long experience in the plastics field the Celanese technical staff is prepared to render important service to designers and manufacturers—particularly in the early stages of product planning. Accumulated data, especially those dealing with many wartime services of Celanese plastics, are available for application to peacetime problems. Celanese can be counted on for impartial advice.





Celanese Plastics offer the manufacturer

MOLDING WITH LUMARITH PLASTICS

For thousands of manufactured articles and parts, the shortest distance between design and finished product can be found in *molded Lumarith plastics*. The fastest molding methods are adaptable to Lumarith, and a molding cycle measured in seconds can often bypass a long production line—dispensing with many of the following manufacturing operations: fabricating, machining, slotting, drilling, thread cutting, surface finishing, painting . . .

Lumarith molds to exquisitely fine detail. Color is *clear through*. Finishing of the molded piece generally requires only the cutting off of mold sprues and buffing or tumbling for final polish. All molding scrap is reusable. There is no waste. With multiple cavity molds, savings in production time can be considerable, and the result is most often an improved product at less cost.

Lumarith is ideal for molding over metal inserts. Its excellent elongation compensates for the differential in expansion and contraction between the metal and the plastic and assures a tight, permanent bond. Metal inserts increase strength of molded parts without sacrifice of surface beauty.

PACKAGING WITH CELANESE PLASTICS

Several years ago, the introduction of the Lumarith "glamour" package was the start of a revolution in the science and art of packaging. The flawless transparency of Lumarith sheets, films and molding materials, together with their ease of fabrication, inspired many new package designs and packaging techniques.

Today, the wartime services of Lumarith have highlighted the practical and functional value of these materials and emphasized the protection Lumarith can afford to food, drugs, clothing, machine parts and other merchandise—in shipment, on the dealer's shelves, or in the home.

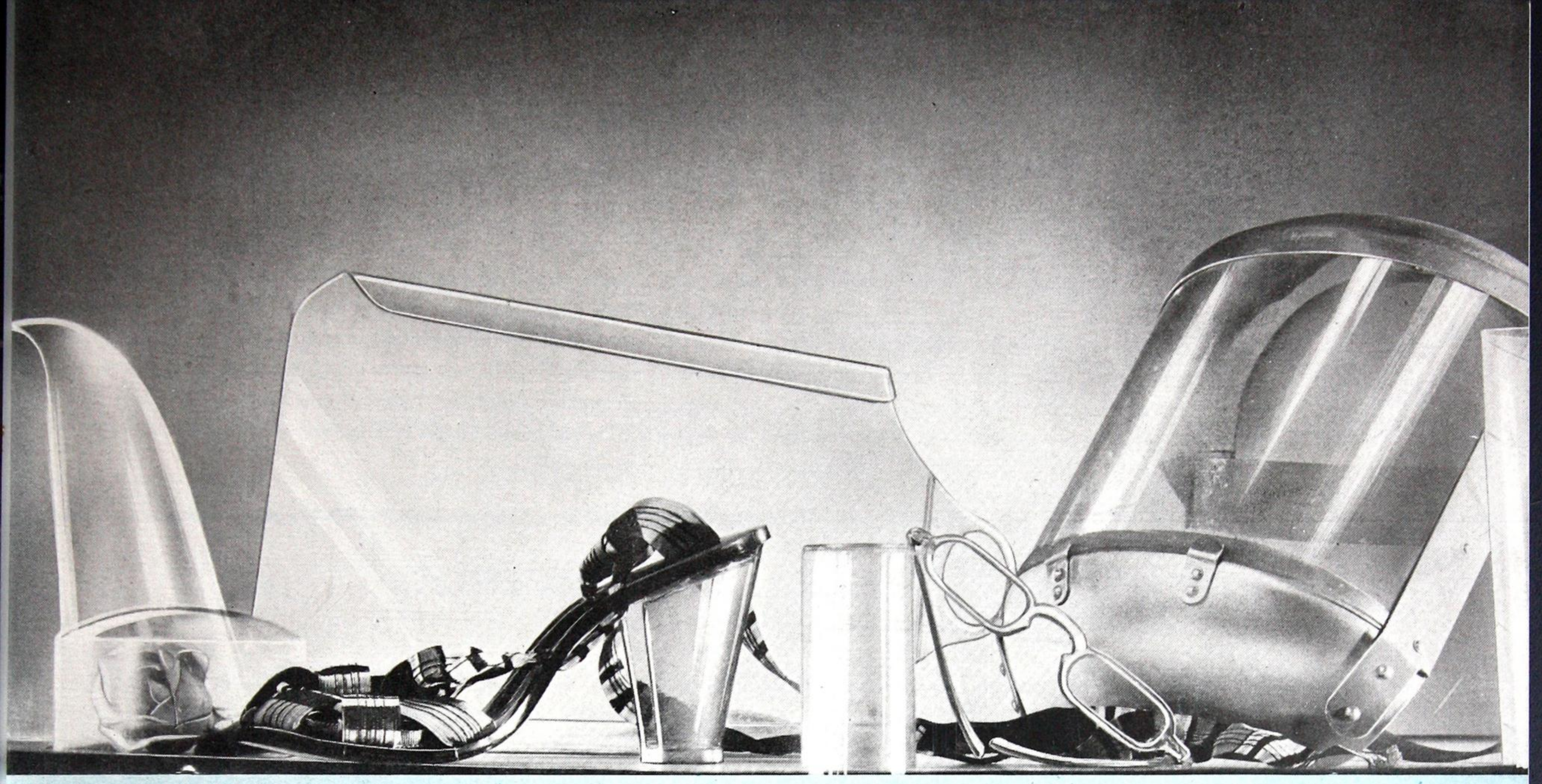
LUMARITH FILMS are:

Germ, mold and fungi proof . . . Waterproof and greaseproof . . . Odorless, tasteless and non-flammable . . . Non-drying and non-aging . . . Ideal for multi-color printing . . . Available in clear transparent and transparent tints.

Lumarith is used for many types of packages: FILM WRAPS . . . TRANSPARENT WINDOWS . . . COMBINATION WRAPS . . . SPIRAL-WOUND TUBES . . . BEADED STRIP CONTAINERS . . . RIGID SHEET CONTAINERS . . . MOLDED CONTAINERS . . . PRESSURE SENSITIVE SEALING TAPES . . . TRANSPARENT ENVELOPES . . . LAMINATED CARTONS . . . RE-USE CONTAINERS . . . COMBINATIONS OF PRODUCT AND PACKAGE.

COMBINATIONS

This war has witnessed the growth of "combination" packaging materials. Combinations provide a degree of protection frequently unobtainable with a single material. Lumarith films and foils are used in many combinations: *Lumarith* with kraft paper and inhibitor coatings—*Lumarith* with metal foil and vinyl—*Lumarith* with vinyl and cellophane. The combination idea will have many civilian applications.



many advantages and shortcuts

FABRICATING WITH LUMARITH AND CELLULOID

Celanese plastic forms: sheets, rods, tubes, films and foils, are capable of fabrication by all standard processes. No elaborate machinery is required, and special jigs, fixtures and templates for individual operations are simple and inexpensive to produce.

Celanese plastics can be cut, sawed, stitched, drilled, swaged, heat formed, blown, turned, milled, cemented and otherwise worked into finished form. The property of integral color is a tremendous aid in the production of attractive and long wearing articles.

LUMARITH PLASTICS FOR THE ELECTRICAL INDUSTRY

All the Celanese plastics are non-conductors of electricity, possessing good dielectric strength. They are especially resistant to the corrosive effects of current-carrying copper wire and moisture, and are therefore ideal in applications where such conditions are encountered.

Celanese plastics in various forms: sheets, rods, tubes, films, foils and molding materials, have a wide range of usefulness in the electrical field. Lumarith CA (cellulose acetate) films and foils serve as effective and corrosion-resistant dielectrics in coils, tubes, bobbins and slot insulation, either as laminates or by themselves . . . for between-layer insulation in multiple-wound coils . . . in condensers. The dielectric strength of Lumarith being high, space saving can be achieved by using extremely thin foils.

Lumarith molding materials and sheets can be made into coil forms, tubes, connector blocks, fluorescent lamp parts, grips, knobs, dials, shockproof tool handles, switchbox guards, fuse plug windows, housings and separator plates.

LITERATURE AVAILABLE

"MOLDING WITH LUMARITH"—Offers technical information on the subject of molding; includes chapters on Lumarith molding formulations, range of properties, A.S.T.M. test methods, labelling, color, finishing, etc. There are many illustrations in color. This book is available to executives planning for plastics.

"FABRICATING METHODS FOR LUMARITH, CELLULOID AND SIMILAR THERMOPLASTIC MATERIALS"—Covers thoroughly the subject of plastics fabricating. It contains many explanatory line drawings, and is an invaluable shop book for the fabricator.

"LUMARITH, A CELANESE PLASTIC FOR PACKAGING"—Eight pages covering the subject of packaging. Contains thirty-four photographs.

"CELANESE SYNTHETICS FOR THE ELECTRICAL INDUSTRY"—Offers technical information for the electrical engineer and designer. Contains descriptive matter, charts, tables and other data covering Celanese plastics, textiles and chemicals for electrical applications.

Write to Celanese Plastics Corporation, a division of Celanese Corporation of America, 180 Madison Avenue, New York 16, N. Y.

LUMARITH* CA SHEETS...RODS...TUBES...FILMS...FOILS...MOLDING MATERIALS

(cellulose acetate)

Because of its great versatility, Lumarith CA (cellulose acetate) is often referred to as the basic thermoplastic among the cellulosics. Its characteristics of high impact and tensile strength, color range and permanence, dielectric strength and water resistance, the wide variety of forms in which it is available, and its easy moldability, have given Lumarith CA an exceptionally wide range of usefulness. Personal items, instrument housings, electrical insulation, packaging materials, automotive and aviation parts and electrical and electric lighting fixture parts are fabricated and molded from this standard thermoplastic. Like other Lumarith plastics, Lumarith CA is available in a large number of formulations.

LUMARITH* *X* MOLDING MATERIALS

(special and high acetyl cellulose acetate)

The Lumarith *X* group is composed of formulations of special and high acetyl cellulose acetate, produced as molding materials only, and possessing general characteristics and molding properties similar to Lumarith CA. However, Lumarith *X* formulations generally exhibit improved form retention and resistance to humidity and high temperature. Crystal clear transparency and unlimited color are available.

LUMARITH* EC SHEETS...FILMS...FOILS...MOLDING MATERIALS

(ethyl cellulose)

Of all the cellulosics, Lumarith EC excels in form retention and warpage resistance. It is unsurpassed in toughness—even at extreme low temperatures and has good resistance to humidity warpage.

Lumarith EC is one of the lightest of plastics, having a specific gravity of 1.07-1.18 and is slightly more affected by the action of oils and solvents than are Lumarith CA and Lumarith *X*. Excellent molding characteristics and good color variation give Lumarith EC a wide range of usefulness.

CELLULOID* SHEETS...RODS...TUBES...FILMS

(cellulose nitrate)

From the standpoint of usefulness, Celluloid, the first plastic, remains one of the important commercial thermoplastics today. Fountain pen barrels, eyeglass frames, pencil cases, tool handles, hammer and mallet heads, toiletries, novelties of all sorts and colorful veneering are manufactured from this tough, economical material.

Celluloid is resistant to most acids and alkalies in dilute form, has good form retention and can be obtained in any color or degree of transparency. Celluloid sheets are made in a variety of configurations.

Celluloid is easy to fabricate. It can be drilled, machined, punched, sawed, stitched, formed, drawn and cemented.

LUMARITH* *X*F FORM RETENTIVE AND FLAME RESISTANT FORMULATIONS...

Special formulations of Lumarith *X* have been developed to offer unusual resistance to heat and humidity. As with other Lumarith thermoplastics, these formulations are adaptable to high speed, low cost injection molding methods.

Improved flame resistance has been achieved at no sacrifice in the toughness that is characteristic of cellulosic thermoplastics. These form retentive formulations provide:

Greater resistance to heat and humidity
Greater resistance to cold flow
Greater flexural and tensile strength
Unchanged toughness

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LUMARITH CA — GENERAL PROPERTIES

	Molding Materials	*Sheets*	*Films & Foils*
SPECIFIC GRAVITY	1.28- 1.34	1.28- 1.34	1.28-1.33
IMPACT STRENGTH (Izod) Ft. Lbs./inch of notch	1.0 - 5.5	1.4 -4.0	
TENSILE STRENGTH p.s.i.	3600-6900	3500-8000	6000-11000
ELONGATION %	20- 50	20- 65	20- 45
BRINELL HARDNESS kg/mm² 10 kg. load—2.5 mm. ball	5- 12	5- 10	
WATER ABSORPTION % 24 hrs. immersion	2.2 - 3.5	2.5 -7.0	4.0 -7.0*
DIELECTRIC STRENGTH volts/mil	290- 365 (⅛" thick)	1300-1600 (0.010")	2800-3300 (0.001")

*MOISTURE ABSORPTION test, 24 hrs. at 0% relative humidity followed by 48 hrs. at 90% R.H.

LUMARITH *X* — GENERAL PROPERTIES

	Molding Materials
SPECIFIC GRAVITY	1.27- 1.32
IMPACT STRENGTH (Izod) Ft. Lbs./inch of notch	1.2- 5.1
TENSILE STRENGTH p.s.i.	3200-8000
ELONGATION %	12- 50
FLEXURAL STRENGTH p.s.i.	3300-13100
BRINELL HARDNESS kg./mm² 10 kg. load—2.5 mm. ball	4.9- 12.5
WATER ABSORPTION %—24 hrs. immersion	1.9- 2.7
DIELECTRIC STRENGTH volts/mil. (⅛" thick)	290- 365

LUMARITH EC — GENERAL PROPERTIES

	Molding Materials
SPECIFIC GRAVITY	1.07- 1.18
IMPACT STRENGTH (Izod) Ft. Lbs./inch of notch	
77°F.	5.6- 11.6
—40°F.	1.6- 3.4
TENSILE STRENGTH p.s.i.	2700-8000
ELONGATION %	4- 39
BRINELL HARDNESS kg/mm² 10 kg. load—2.5 mm. ball	4- 8.6
WATER ABSORPTION % — 24 hrs. immersion	1.2- 2.1
DIELECTRIC STRENGTH volts/mil. (⅛" thick)	400- 520

CELLULOID — GENERAL PROPERTIES

	Sheets & Films
SPECIFIC GRAVITY	1.35- 1.40
IMPACT STRENGTH (Izod) Ft. Lbs./inch of notch	1.00- 6.0
TENSILE STRENGTH p.s.i.	4000-11000
ELONGATION %	10- 50
BRINELL HARDNESS kg./mm² 10 kg. load—2.5 mm. ball	5- 11
WATER ABSORPTION %—24 hrs. immersion	1.5- 3.0

A NEW CELANESE DEVELOPMENT

This new series of Lumarith *X* formulations opens up fields hitherto reserved for the slower-molding plastics; for example, in the electrical industry.

They are available in molding materials only—in a good range of colors.

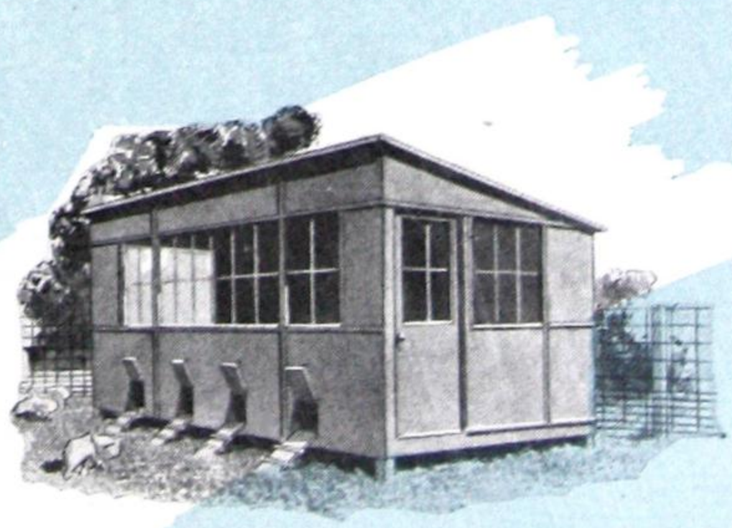
VIMLITE* PLASTIC GLAZING

VIMLITE is a translucent and flexible glazing material, made of cellulose acetate applied over wire mesh. It has a bursting strength of 200 lbs. per square inch. It has exceptionally good weathering qualities, withstanding hail and sleet and severe impact.

Vimlite has almost an endless number of uses . . . as glazing for greenhouses, cold frames, poultry buildings, solaria, storm sash . . . as machine guards, stockroom partitions and draft screens that admit light . . . for stage scenery, studio props and store window displays.

As a glazing material, Vimlite offers health benefits—transmitting a high percentage of sunshine's ultra-violet rays. Light transmission is diffused and non-burning. Insulating value is high. The radiant heat transmitted is dissipated slowly—an important factor in maintaining overnight high temperatures in cold frames and farm buildings.

Vimlite is produced in 24", 28" and 36" widths—in rolls 25', 50' and 100' long. It may be cut to size with shears, and bent without cracking over a 2" radius. Vimlite is obtainable through local jobbers and dealers. You are invited to write directly for sample.



FORMS . . . TYPES

MOLDING MATERIALS

LUMARITH CA
(cellulose acetate)

LUMARITH X
(special and high acetyl cellulose acetate)

LUMARITH EC
(ethyl cellulose)

Pellets and granules for injection, extrusion, and compression molding. From crystal clear transparent to opaques in unlimited color range. Series of formulas providing a wide range of properties.

SHEETS

LUMARITH CA
(cellulose acetate)

From crystal clear transparent to opaque in unlimited color range. Various types giving wide range of properties. Sizes: 20" x 50" and up. Thicknesses from 0.005" to .250".

LUMARITH EC
(ethyl cellulose)

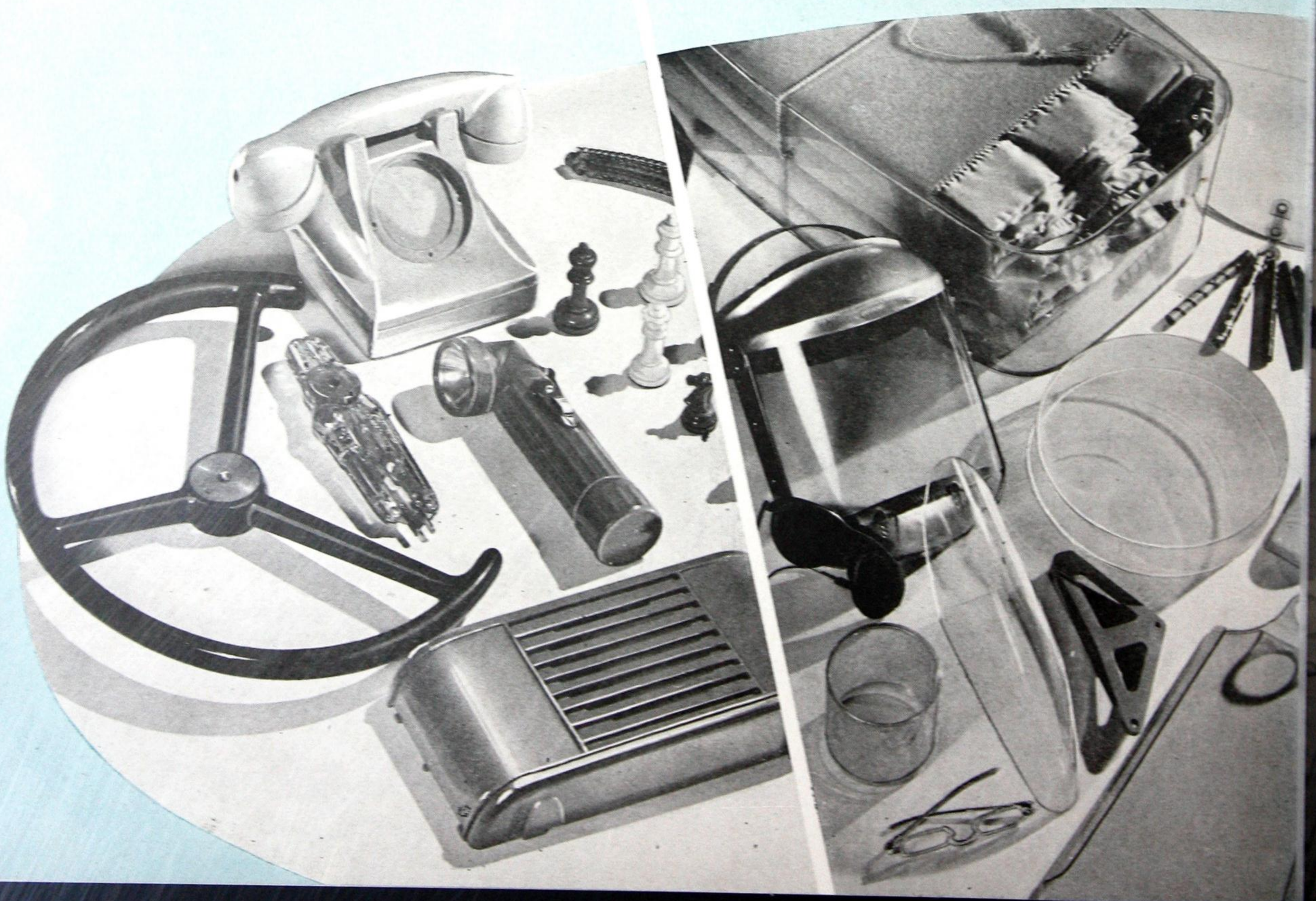
Clear transparent to opaque, wide range of colors.

CELLULOID
(cellulose nitrate)

Unlimited transparency and color range. Various formulations giving wide range of properties. Sizes usually 20" x 50". Thicknesses from 0.005" to over 1.0".

VIMLITE
(translucent wire mesh base) plastic glazing

Continuous rolls of 24", 28" and 36" width. 100', 50', and 25' in length.



AND APPLICATIONS

FILMS AND FOILS

LUMARITH CA
(cellulose acetate)

In standard rolls up to 50" in width or in slit-to-width reels. Also available in stock size and cut-to-size sheets. Semi-rigid and flexible types. From .0005" to .020" inclusive, in clear transparent and tinted transparent, or with mat finish, one side.

LUMARITH EC
(ethyl cellulose)

In stock size rolls or slit-to-width reels in a range of gauges—clear transparent or mat finish one side.

CELLULOID
(cellulose nitrate)

In continuous rolls up to 43" or in slit-to-width and in cut-to-size sheets. From .003" to .010" in thickness.

RODS AND TUBES

LUMARITH CA
(cellulose acetate)

CELLULOID
(cellulose nitrate)

Standard 60" lengths or in coils for thin rods. Standard diameters and shapes in a wide range of sizes, colors and transparencies.

CELANESE PLASTICS AID

THE DESIGNER IN MANY WAYS

In nearly every manufacturing field, Celanese plastics are contributing improvements to the operation, serviceability, and appearance of consumer goods, because they offer a broad range of physical characteristics—*transparency, color, surface permanence, structural strength, dielectric strength*. . .

Complex parts which ordinarily would require several different materials can be designed for one piece, monolithic construction. The savings in cost and improvement in appearance of finished parts ofttimes is considerable.

Thus, Celanese plastics open up new avenues of approach to product design, putting new and idea-stimulating tools in the designer's hands.

UNLIMITED COLOR AND DENSITY CONTROL
TRANSPARENCY AND COLOR CONFIGURATIONS
TOUGHNESS WITH LIGHTNESS AND FLEXIBILITY
MOLDABILITY OVER METAL
TOUCH COMFORT
EXACT FORMULATION
CLEAR-THROUGH COLOR AND SURFACE PERMANENCE
EASY FABRICATION

TYPICAL APPLICATIONS OF CELANESE PLASTICS

AUTOMOTIVE & AVIATION steering wheels, instrument panels, radio grills, controls, switch buttons, door handles, radiator ornaments, bezels, lighting fixtures, antennae housings, ventilator tubes, transmitter guards, interior trim, cockpit enclosures.

RADIO & ELECTRICAL molded parts and fittings, panels, bezels, instrument housings, insulation, plugs, jacks, molded trim, knobs, dials, coils, lighting fixture parts, switch plates, instrument housings, fuse plug windows, toggle switches, condensers.

HARDWARE tool handles, mallet heads, motor tool housings, drawing instruments, transparent oil cans, architectural moldings, hinges, door knobs, threshold strips, transparent safety shields, transparent eye protectors, industrial chart covers, piano keys, lunch boxes, plastic glazing.

APPLIANCES telephone handsets, shaver housings, parts for refrigerators, washers, dryers, mixers, vibrators, sunlamps.

HOUSEHOLD ACCESSORIES coat hangers, closet hooks, blanket boxes, shower curtain rings, toilet seat veneering, bath wall fixtures, towel racks, mailboxes, drawer pulls, closet accessories, lamp shades, clothespins, bookends, table mats, table decorations.

COSMETICS compacts, lipstick cases, powder boxes, puff boxes, tissue holders.

PERSONAL ITEMS pencil cases, pencils and pens, beads, tooth brush handles, eyeglass frames, combs, handkerchief boxes, picture frames, shoes, slippers, toilet sets, jewel boxes, buttons, belt buckles, costume jewelry, millinery trimming, handbags, hatboxes, transparent bibs, artificial flowers.

SPORTING GOODS fishing tackle boxes, tennis rackets, gun stocks, fish net floats, artificial lures, camera housings, photographic equipment, films, sun glasses.

GAMES & TOYS dominoes, chess and checker sets, dice, table tennis balls, shuttlecocks, billiard balls, rattles, teething rings.

PACKAGING film wraps, window cartons, set-up boxes, all transparent bags and envelopes, transparent rigid containers, molded containers, decorative and protective laminations, reuse containers.

CELANESE* PLASTICS

TECHNICAL SERVICE

The successful conversion of plastics to finished parts depends first of all on the selection of the right plastic and the right formulation. Therefore, it is important that the designer, engineer or manufacturer make use of the technical and research information available to him through the plastic producer. To this end Celanese offers these services:

TECHNICAL SERVICE The technical service department is on call for on-the-spot assistance either before or after production starts. A solid background of experience, both in molding and fabrication of plastics, is available for application to your specific problems.

MERCHANDISING SERVICE The Celanese organization, as a whole, thinks in terms of marketing, and customer's problems are also approached from the standpoint of practical merchandising. The standing of the Celanese trade name throughout the world is proof of the merchandising thinking that is at your service. Celanese Plastics Corporation, *a division of Celanese Corporation of America*, 180 Madison Avenue, New York 16, N. Y.